

2017 INPRS UPDATE

Pension Management Oversight Committee August 30, 2017

Steve Russo
Executive Director

About INPRS

With approximately \$32B in assets, INPRS serves the retirement needs of approximately 470,000 members and more than 1,200 public employers

	N	in	e	R	Δ.	ti	r	Δ	m	Δ	n	t	F		n	Ч	C
_	ıv			$\mathbf{\Gamma}$	$\overline{}$	u								ш		u	_

- PERF
- ☐ TRF Pre- '96
- ☐ TRF '96
- ☐ '77 Police and Fire
- Judges
- ☐ Excise Police, Gaming Agents and Conservation Officers
- Prosecuting Attorneys
- ☐ Legislators Defined Benefit
- Legislators Defined Contribution

Three Non-Retirement Funds

- Pension Relief
- Public Safety Officers' Special Death Benefit Fund
- State Employees' Death Benefit Fund



Agenda

General Update

National Trends

INPRS Requests For PMOC Consideration



INPRS – FY17 in Review

INPRS' managed pension plans remain well funded with no expected increase in 2019 employer contribution rates

- Estimated aggregate funded status of the pre-funded plans modestly increased from 86.1% to 86.3%
- Less than assumed 5 year investment returns were offset by more than assumed employer contributions and less than assumed COLAs
 - Defined Benefit investment pool 5 year rate of return of 5.7% versus a 6.75% assumption
 - Employers paid 109.5% of the Actuarial Determined Contribution (ADC)
 - PERF/TRF one-time check versus a 1% COLA assumption
- Teacher Pre-'96 Pay-Go plan remains stable
- Continued progress towards exemplary customer service and operational excellence



FY2017 Actual Change In Net Position*

INPRS' Net Assets increased 6% from July 1, 2016 to June 30, 2017

Net Assets – June 30, 2016

\$29.9B

Contributions + \$2.2B

Investment Income + \$2.3B

Payments - \$2.6B

Net Assets – June 30, 2017

\$31.8B

* Preliminary unaudited results – Excludes Pension Relief



Estimated Funded Status as of June 30, 2017

\$ in Millions

	Act	uarial Valu	e of	Assets Fund	dec	d Status as of J	June 30, 2017	Ac	tuarial Valu	e of	i Assets Fund	ded	l Status as of J	June 30, 2016
Defined Benefit Retirement Plans	A	Actuarial Accrued Liability	,	Actuarial Value of Assets		Unfunded Actuarial Accrued Liability	Funded Status		Actuarial Accrued Liability		Actuarial Value of Assets	l	Unfunded Actuarial Accrued Liability	Funded Status
PERF	\$	19,106.2	\$	15,098.9	\$	4,007.3	79.0%	\$	18,408.9	\$	14,553.0	\$	3,855.9	79.1%
TRF 1996 Account		6,914.2		6,414.1	\$	500.1	92.8%		6,391.8		5,865.8	\$	526.0	91.8%
1977 Fund		5,385.8		5,587.6		(201.8)	103.7%		5,039.8		5,255.2		(215.4)	104.3%
Judges		523.7		492.0		31.7	93.9%		501.1		469.4		31.7	93.7%
EG&C Plan		142.6		124.5		18.1	87.3%		138.9		118.5		20.4	85.3%
PARF		96.7		58.0		38.7	60.0%		85.0		56.4		28.6	66.4%
LEDB Plan		3.8		3.1		0.7	81.9%		4.0		3.2		0.8	80.7%
Aggregate Pre-Funded Plans	\$	32,173.0	\$	27,778.2	\$	4,394.8	86.3%	\$	30,569.5	\$	26,321.5	\$	4,248.0	86.1%
TRF Pre-1996 Account (Pay-As-You-Go)		16,736.7		4,951.1		11,785.6	29.6%		16,840.2		5,009.0		11,831.2	29.7%
Aggregate All INPRS Plans	\$	48,909.7	\$	32,729.3	\$	16,180.4	66.9%	\$	47,409.7	\$	31,330.5	\$	16,079.2	66.1%



Unfunded Liabilities A Year in Review

No changes in actuarial assumptions or methods in FY17

\$ In Millions

INPRS Unfunded Liability- 6/30/16	\$16,079.2
Actuarial Expected Change	(159.9)
Expected Unfunded Liability (6/30/17)	15,919.3
Investment Return	380.6
13th Check vs. COLA - PERF & TRF	(189.8)
Contributions	(141.2)
Demographics / Other ¹	211.5
INPRS Unfunded Liability- 6/30/17	\$16,180.4

Includes demographic gains/losses, higher COLA in the 1977 Fund and a lower COLA for Judges.

Contributions - A Year in Review

- INPRS' Funding Policy establishes adequate contribution rates that seek appropriate levels of stability
 - At least the amount of the Actuarial Determined Contribution (ADC)
 - Not less than the prior year's rate until 100% funded
- Collected \$2.178B in pension plan contributions
 - \$ 945M Employer contributions paid as a % of actual payroll
 - \$ 852M General Fund Appropriations
 - \$ 340M Member Contributions
 - \$ 41M Other
- Employers paid 109.5% of the Actuarial Determined Contribution (ADC)



Estimated FY17 INPRS Actuarial Determined Contributions (ADC)

\$ in Thousands

		FY2017 (Ad	tual	Payroll Based	d Adj)		FY2016 (A	ctual	Payroll Base	d Adj)
Defined Benefit Retirement Plans		Actuarial Determined Contribution (ADC) Adj for Actual Payroll		GF propriation/ imployer/ Other ntributions ¹	Percentage Contributed	Actuarial Determined Contribution (ADC) Adj for Actual Payroll		GF Appropriation/ Employer/ Other Contributions ¹		Percentage Contributed
PERF	\$	490,886	\$	558,661	113.8%	\$	490,538	\$	547,684	111.6%
TRF 1996 Account	\$	198,444	\$	227,207	114.5%	\$	180,375	\$	215,626	119.5%
1977 Fund	\$	90,819	\$	150,699	165.9%	\$	113,353	\$	151,299	133.5%
Judges	\$	14,335	\$	16,824	117.4%	\$	17,485	\$	16,946	96.9%
EG&C Plan	\$	4,037	\$	5,691	141.0%	\$	4,078	\$	5,297	129.9%
PARF	\$	2,148	\$	1,486	69.2%	\$	1,381	\$	1,440	104.3%
LEDB	\$	135	\$	135	100.0%	\$	138	\$	138	100.0%
Aggregate Pre-Funded Plans	\$	800,804	\$	960,703	120.0%	\$	807,348	\$	938,430	116.2%
TRF Pre-1996 Account (Pay-As-You-Go)	\$	875,524 ²	\$	875,524	100.0%	\$	892,548 ²	\$	892,548	100.0%
Aggregate All INPRS Plans	\$	1,676,328	\$	1,836,227	109.5%	\$	1,699,896	\$	1,830,978	107.7%

¹ Excludes member ASA contributions, Soft Freeze Payments and Pre-Funded 13th Check.



² TRF Pre-1996 Appropriation is determined by State Statute & is therefore shown in lieu of ADC.

2017 Board Approved Contribution Rates vs. the Actuarial Determined Contribution

\$ In Thousands

Defined Benefit Retirement Plans	2018 Actuarially Determined Contribution (ADC) Rates	Board Approved Contribution Rates
PERF		
State ¹	9.89%	11.20%
Political Subdivision ²	9.99%	11.20%
TRF 1996 Account ¹	6.73%	7.50%
1977 Fund ²	9.15%	17.50%
EG&C Plan ²	15.97%	20.75%
Judges ¹ - Appropriation	\$15,117	\$15,117
PARF ¹ - Appropriation	\$2,714	\$2,714
LEDB ¹ - Appropriation	\$237	\$237
TRF Pre-1996 Account ¹ - Appropriation	\$866.200	\$866.200

¹ Approved Funding Rates become effective July 1st, 2017



² Approved Funding Rates become effective January 1st, 2018

Investments - A Year in Review

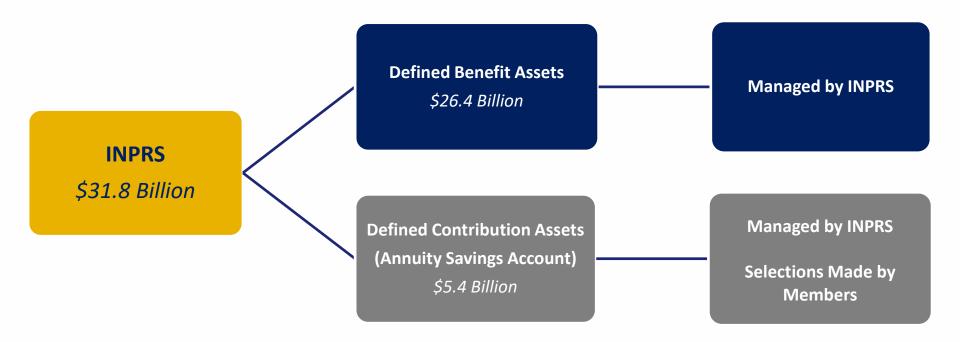
- INPRS' total *market value of assets* = \$31.8 billion as of June 30, 2017
- INPRS' defined benefit plan returned 8.0% for fiscal year 2017
- The actuarial value of assets is used in calculating the funded ratio and actuarial required contributions. Investment returns are smoothed over five years. INPRS' five year return is 5.7% annualized
- INPRS continues to target a 6.75% long-term rate of return assumption; a more realistic return assumption among state plans
- Synergies of the combined PERF/TRF assets continue to reduce fees: Net Present Value Savings = \$405.8M



INPRS Assets

One Organization, Two Plans

INPRS assets are a mix of Defined Benefit and Defined Contribution monies





INPRS' Defined Benefit Investment Imperatives

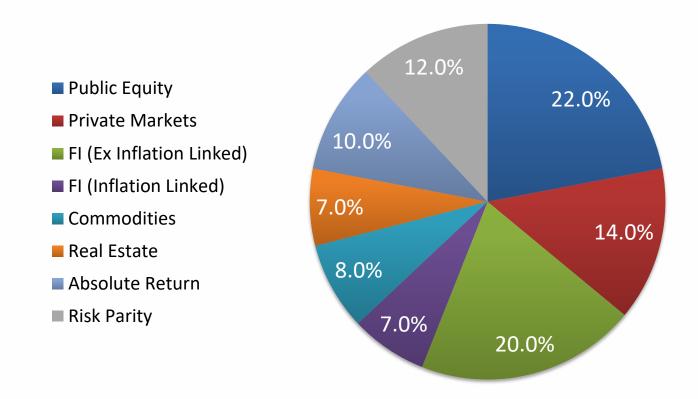
Achieve a 6.75% return over the long term

Achieve the return as efficiently & effectively as possible

Always have enough cash on hand to pay benefits



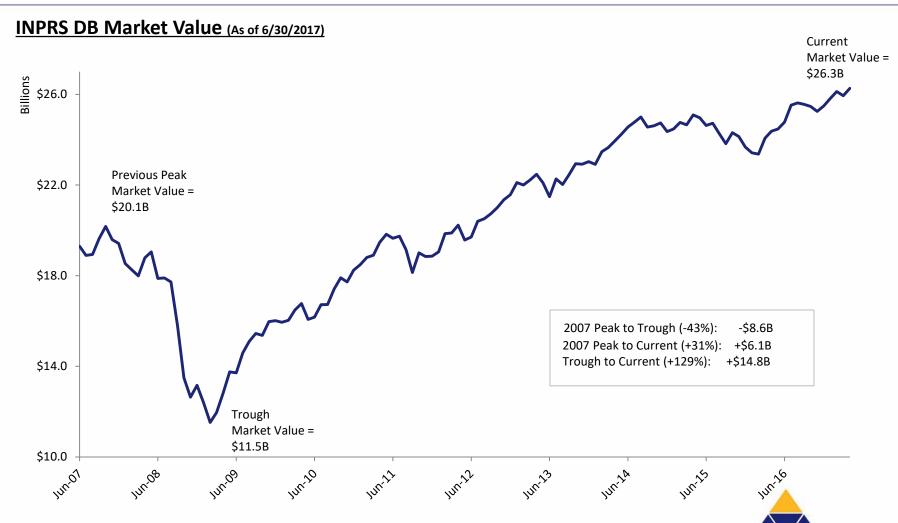
Defined Benefit Target Asset Allocation



No changes from the asset-liability study in FY15

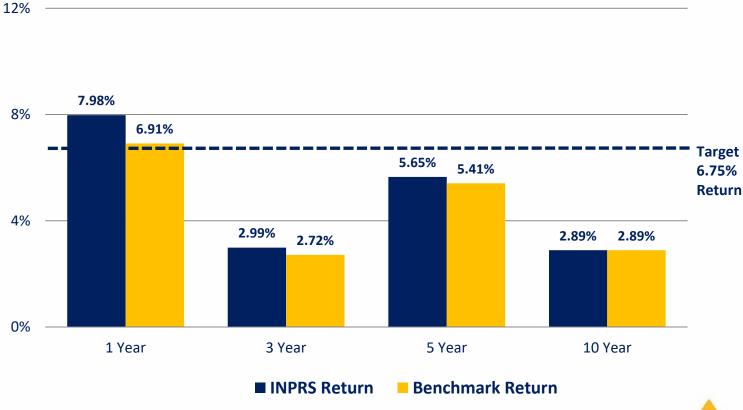


Defined Benefit Balance Through Time

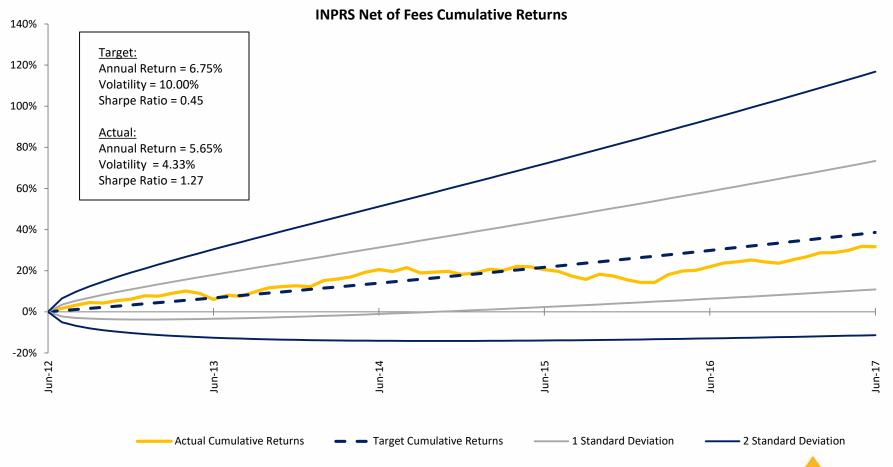


Defined Benefit Performance vs. Benchmarks

Annualized Net of Fee Returns as of 6/30/17



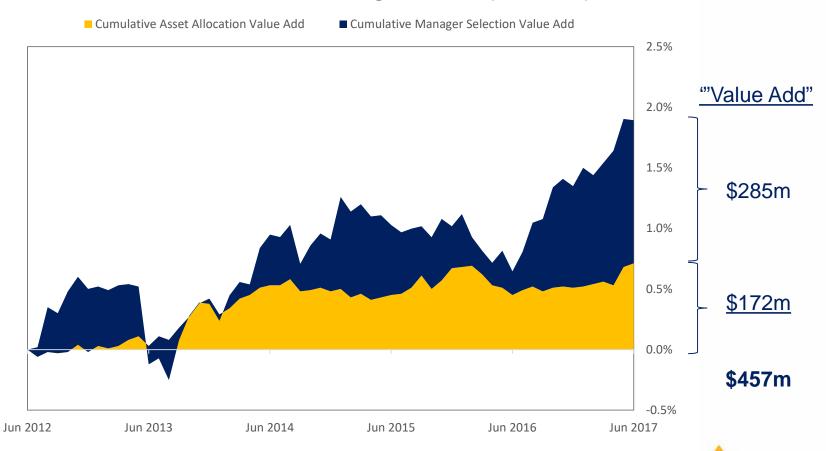
Defined Benefit Performance vs. 6.75% Objective



INPRS DB "Value Add"

July 2012 – June 2017

Cumulative Excess Returns over the Target Allocation (Net of Fees)





Defined Contribution (DC) Imperatives

Provide a simple and diversified default option

Most members elect to stay invested in the default option through retirement.

Provide a simple and diversified menu of stand-alone options

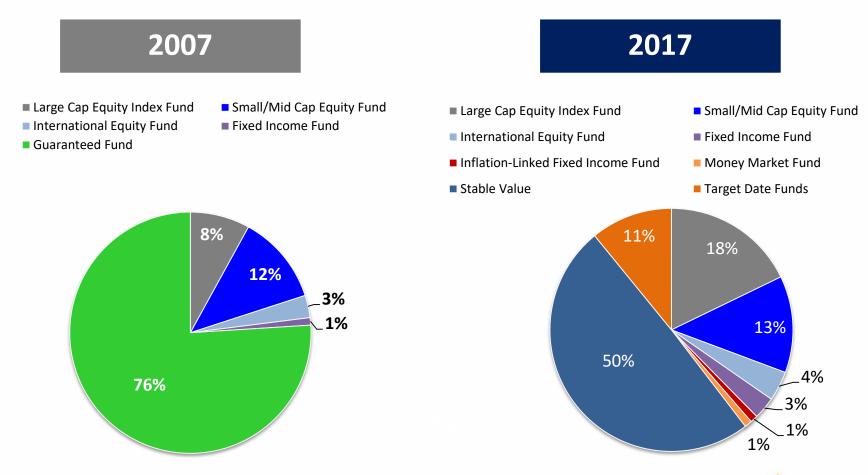
Reducing complexity & the number of investment options is believed to lead to better outcomes based on research from leading Defined Contribution experts.

 Leverage the DB asset base to provide low-cost investment options

Leverage the size of the Defined Benefit assets in an effort to lower the fees across Defined Contribution investment options.



Defined Contribution (DC) Fund Allocation



Sudan and Terror States Divestment Update 2017

✓ 7 publicly traded securities, representing 0.05% of INPRS' assets, are on-track for divestment per legislative mandate

INPRS continues to be in full compliance with the Sudan and Terror States Divestment legislation

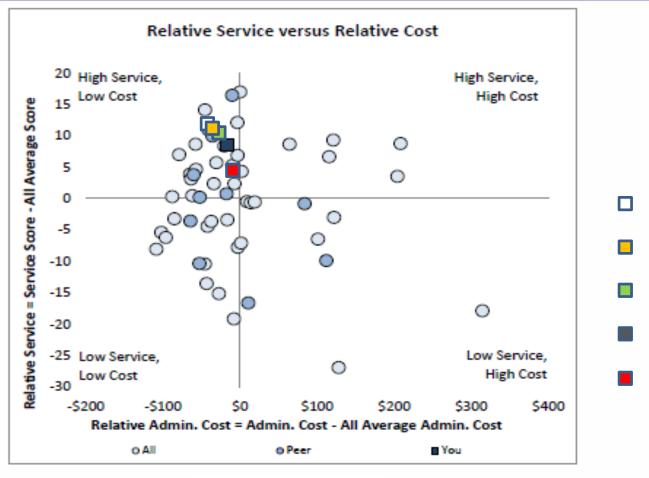


Anti-Israel Divestment Update 2017

- MSCI provided a list of potential businesses on January 31, 2017
- Identified businesses will be given four quarters to confirm or deny allegations. After four quarters, those that confirm or remain unresponsive will be added to the Restricted Business List and subject to divestment
- No restricted businesses identified for 2017 Restricted Business List
- MSCI continues to engage unresponsive businesses quarterly



INPRS Is Higher In Service & Lower In Cost Relative To Our Peer Group



FY 17 est.

FY 16

FY15

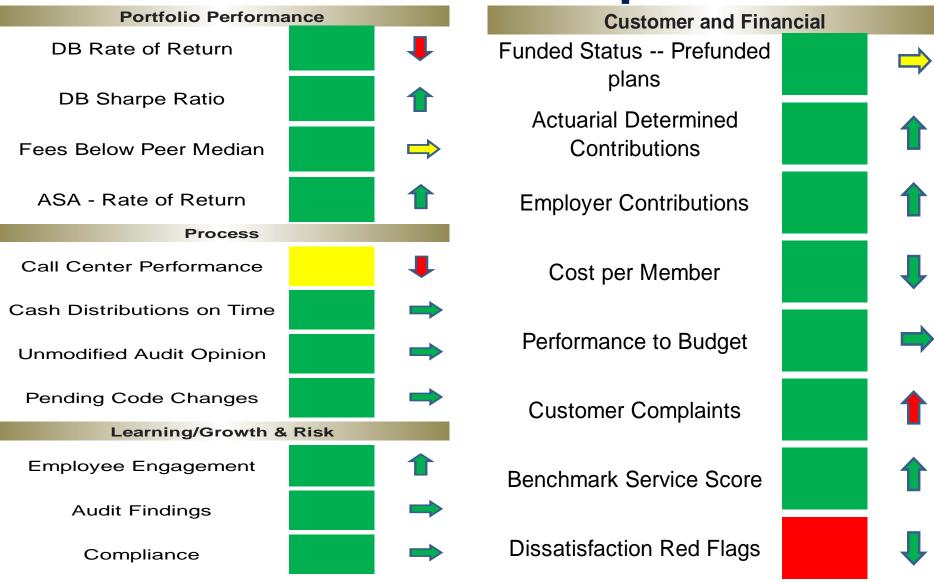
FY14

FY13

© 2015 CEM Benchmarking Inc. Executive Summary - Page 14



FY17 Year End Performance and Year over Year Improvement



FY 2018 Top 5 Priorities

- Successfully execute an Integrated Vendor Business Model that optimizes service and cost
 - VOYA DC Record Keeping, Tier 1 Call Center, and Online Services
 - MetLife ASA/DC Annuities
 - Expanded DB services
 - Integrating VOYA DC, MetLife Annuity, and INPRS DB services into a seamless member experience
- Implement FY2017-18 legislative changes
- Enhance data integrity and security
- Implement a flexible staffing model that delivers cost effective, stable and predictable service levels throughout the year
- Evaluate an internal investment management program



Optional State of Indiana PERF: My Choice Update

- 2011 SEA created an optional PERF: My Choice Plan for first time newly hired State of Indiana PERF eligible employees
 - Employee contributes 3% to their DC account (same as PERF Hybrid plan & by statute, state picks up contribution)
 - State contributes the same as the PERF DB contribution rate (currently 11.2%)
 - Employee receives at least 3% and not greater than the actuarial normal cost of the PERF DB plan (currently 3.4%)
 - The amount not credited to the member is applied to the PERF DB unfunded liability (currently 7.8%)
- Between March 1, 2013 and June 30, 2017 (25,090 eligible new hires)
 - 80% (20,165) defaulted to the hybrid plan
 - 11% (2,712) proactively enrolled in the hybrid plan
 - 8% (2,081) proactively enrolled in the My Choice plan
 - 1% (126) defaulted to the My Choice plan
 - 0% (6) decision pending



PERF: My Choice Plan For Political Subdivision Employers

- 2014 HEA1466 created an optional My Choice Plan for PERF local units known as political subdivisions (PSDs)
 - The PSDs will be able to offer PERF: My Choice, PERF Hybrid or a choice between each to new hires
- The PERF: My Choice Plan provides PSDs employers more control over their contribution rates
 - The mandatory 3% contributions may be paid by the employer, employee or shared by the employer and employee (same as today)
 - Employer contribution is determined by the employer:
 - Employers can pay between 0 % and the DB normal cost (4.1% effective 1/1/18) into an employee's PERF: My Choice
 - Employer is also required to pay the supplemental rate which funds the unfunded liability in the PERF Hybrid plan (7.1% effective 1/1/18). Employers pay this amount to INPRS, not the employee's PERF: My Choice
 - New employers who have never offered the PERF Hybrid, but who choose to offer only the PERF: My Choice will not have to pay the supplemental rate
- Currently we have 11 employers who have signed up for the PERF: My Choice Plan:
 - 2 employers are only offering the PERF: My Choice to new hires
 - 9 employers are offering new hires a choice between PERF: My Choice and PERF Hybrid



Teachers' Retirement Fund (TRF) Pre-1996 Account Update – PSF Only

■ 3% year-over-year appropriations growth for FY2018 — FY2020

\$ Millions	Actual <u>FY14</u>	Actual <u>FY15</u>	Actual FY16	Actual <u>FY17</u>	Forecast ¹ <u>FY18</u>	Forecast ¹ <u>FY19</u>	Forecast ¹ <u>FY20</u>
<u>Total:</u>							
Benefit Payments	(\$916.7)	(\$972.8)	(\$989.7)	(\$1,007.8)	(\$1,047.3)	(\$1,075.5)	(\$1,100.6)
General Fund Appropriations	\$776.3	\$792.8	\$816.5	\$841.0	\$866.2	\$892.2	\$919.0
Amount Withdrawn from PSF	(\$140.4)	(\$180.0)	(\$173.2)	(\$166.8)	(\$181.1)	(\$183.3)	(\$181.6)
Lottery Transfer	\$30.0	\$32.5	\$30.0	\$30.0	\$30.0	\$30.0	\$30.0
Other Income	\$3.2	\$5.8	\$5.0	\$4.5	\$7.2	\$7.1	\$7.1
Investment Gains / (Losses)	\$376.8	\$0.8	\$34.4	\$281.8	\$192.4	\$195.7	\$199.0
13th Check Prefunding ²	\$19.3	\$20.3	\$41.0	\$0.0	\$21.7	\$21.7	-
PSF Balance	\$2,884.4	\$2,763.8	\$2,701.0	\$2,850.5	\$2,899.0	\$2,948.5	\$3,003.0

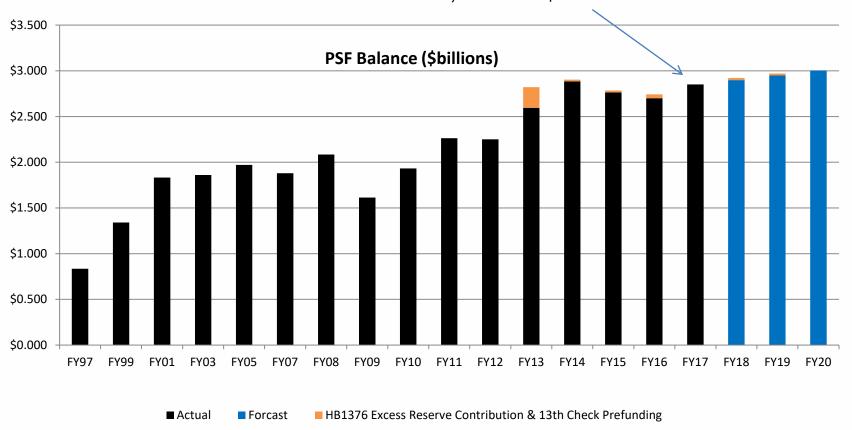
¹ Based on the 6/30/2016 Actuarial Valuation. FY18, FY19 and FY20 forecast benefit payments could change.

² 13th Check Prefunding: Received 13th Check Prefunding for FY2016 & FY2017 (\$41M) in FY2016. 2018 Budget Bill has 13th Check Prefunding for FY2018 and FY2019 (\$43.4 million)



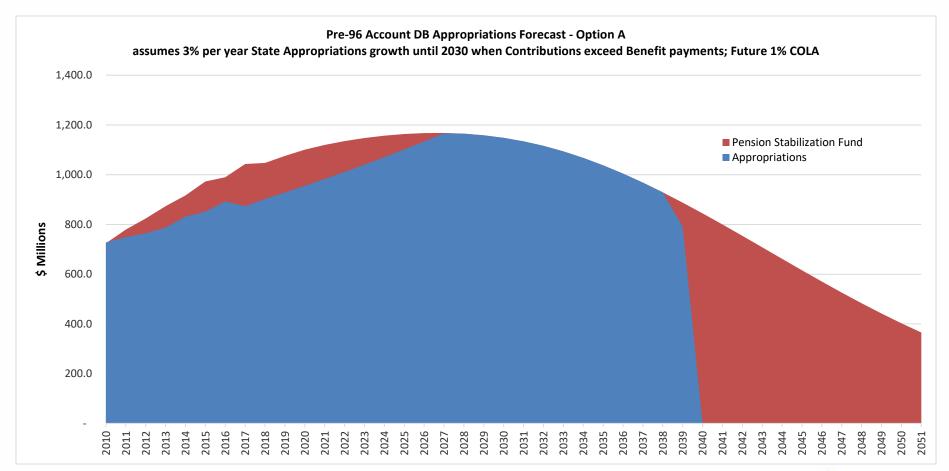
TRF Pre-1996 Pension Stabilization Fund

Balance as of June 30, 2017 = \$2.9B





Teachers' Retirement Fund (TRF) Pre-1996 Account Forecast – Option A – PSF only*



*Based on the 6/30/2016 Valuation; Only includes Pension Benefit Payout and PSF Assets, excludes ASA Annuities



Pension Relief

Established in 1977 to help cities and towns with the costs of legacy police and firefighter retirement plans

\$ in millions

'								
	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020
	Actual	Actual	Actual	Actual	Actual	Forecast	Forecast	Forecast
<u>Additions</u>								
General Fund Appropriation (State)		\$ 145.0	\$ 175.0	\$ 155.0	\$ 160.0	\$ 150.0	\$ 145.0	\$ 140.0
Lottery (State)		30.0	32.5	30.0	30.0	30.0	30.0	30.0
Cigarette Tax (State)		23.8	23.4	23.6	23.1	23.5	23.5	23.5
Alcohol Tax (State)		3.4	3.6	3.7	3.9	3.7	3.7	3.7
Public Deposit Insurance Fund (PDIF)		0.2	0.0	0.0	0.0	0.0	0.0	0.0
Investment Income		0.1	0.1	0.3	0.7	0.1	0.1	0.1
Total Additions		\$ 202.5	\$ 234.6	\$ 212.6	\$ 217.7	\$ 207.3	\$ 202.3	\$ 197.3
Deductions								
Pension Relief Distributions		\$ 219.4	\$ 217.7	\$ 215.8	\$ 213.3	\$ 211.3	\$ 209.5	\$ 206.5
Death Benefits		0.3	0.6	0.0	0.3	0.3	0.3	0.3
Other (Local Unit Withdrawals & Admin. E	Expenses)	2.2	0.5	0.0	0.0	0.1	0.1	0.1_
Total Deductions		\$ 221.9	\$ 218.8	\$ 215.8	\$ 213.6	\$ 211.7	\$ 209.9	\$ 206.9
Pension Relief Fund Balance	\$ 36.6	\$ 17.2	\$ 33.0	\$ 29.8	\$ 33.9	\$ 29.5	\$ 21.9	\$ 12.3
Memo: Local Unit Balances	\$ 4.2	\$ 2.1	\$ 1.6	\$ 1.7	\$ 1.7	\$ 1.5	\$ 1.5	\$ 1.5



PERF / TRF COLAs & Thirteenth Checks

- 2017 HEA1001 State Biennial Budget appropriated \$26.6M in each of the next two years to fund a traditional 13th check for certain PERF, TRF and EG&C retirees
- INPRS staff continues to explore policy options that could separately fund COLAs in a prudent manner while protecting pension assets intended to pay future benefits



National Trends

- Shifting of risk from employers to employees through changes to plan design and plan type
 - Last year, two states established defined contribution plans as the primary benefit for new hires
- Continued improvements in employer pension funding efforts
- Decline in aggregate funding levels
 - Tepid investment returns
 - Reductions in assumed rates of return
 - Recognition of mortality improvements
 - Movement from open to closed amortization periods and towards shorter amortization periods
- State and local revenues, and the number of public employees and their salaries have stagnated or are growing below historic norms
- Since 2009, 30 states have reduced, suspended, or eliminated COLAs for new hires, current employees, or retirees. Most COLA changes impacting retirees were subjected to legal challenge; most, but not all, were affirmed by courts

INPRS Request For PMOC Consideration

- Allow inactive PERF/TRF members to roll funds into their DC account
 - Current law
 - Requires a member to be active in order to roll funds into their ASA
 - Requires ASA and RSA accounts to be separate
 - Rationale for current law
 - Minimize risk of the Guaranteed Fund
 - Concern over in-service distributions
 - The Guranteed Fund has been eliminated and rollovers will now be deemed DC funds thus eliminating the in-service distribution concern

INPRS Request For PMOC Consideration

- Various other matters
 - Update the LEDC default investment choice to be the Target Date Funds in lieu of the INPRS Consolidated Retirement Investment Fund (CRIF)
 - Eliminate the CRIF as an option in the LEDC plan
 - Clean-up in the Death Benefit Fund statute that intended for qualifying individuals to make the \$100 payment annually in lieu of quarterly



APPENDIX

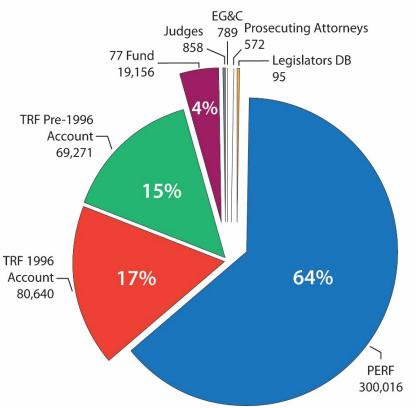


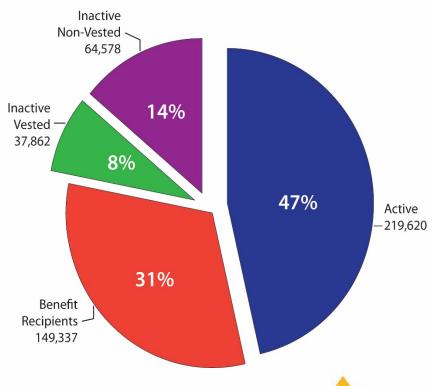
Overview – Member Demographics

(Census Data as of as of June 30, 2016)

470,000+ Members

Members by Fund Members by Status

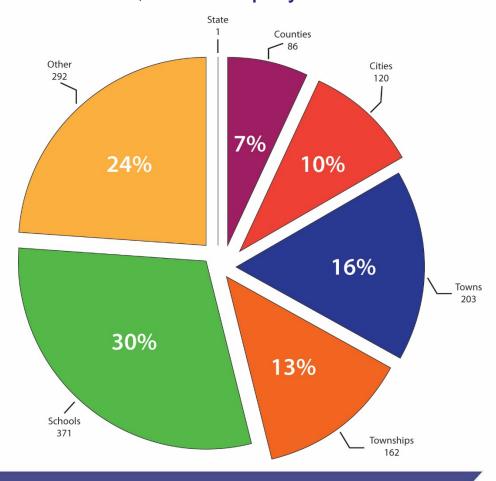




Overview – Employer Demographics

(as of June 30, 2017)

1,200+ Employers





Pension Funding Sources FY2017 – FY2020

Ċ	in	N Ail	1:	ons
•		17111		OHS

\$ in Millions					
	FY2017 Actual				
Fund	General Fund Appropriation	Other ²			
PERF - Pre-Funded 13th Check ¹		\$723.5			
TRF - Pre-1996 Account - Pre-Funded 13th Check ¹	\$841.0	\$63.4			
TRF - 1996 Account		\$320.0			
1977 Fund		\$197.8			
JRS	\$9.7	\$10.4			
EG&C Plan - Pre-Funded 13th Check ¹		\$6.8			
PARF	\$1.5	\$1.4			
LEDB & LEDC	\$0.1	\$1.8			
Sub-Total	\$852.3	\$1,325.1			
Pension Relief	\$160.0	\$57.0			
Total	\$1,012.3	\$1,382.1			

FY2018 Fore	'2018 Forecast ³ FY2019 Forecast ³			FY2020 Forecast ³			
General Fund Appropriation ³	Other ²	General Fund Appropriation	_		Other ²		
	\$721.7		\$731.3		\$741.0		
\$4.8		\$4.8					
\$866.2 \$21.7	\$60.1	\$892.2 \$21.7	\$57.4	\$919.0	\$55.0		
	\$340.6		\$370.9		\$389.4		
	\$189.0		\$193.2		\$197.6		
\$8.0	\$10.3	\$8.9	\$10.4	\$9.8	\$10.4		
	\$6.5		\$6.6		\$6.7		
\$0.1		\$0.1					
\$3.0	\$1.3	\$3.2	\$1.4	\$3.0	\$1.4		
<u>\$0.2</u>	<u>\$1.8</u>	<u>\$0.3</u>	<u>\$1.8</u>	<u>\$0.3</u>	<u>\$1.8</u>		
\$904.0	\$1,331.3	\$931.2	\$1,373.0	\$932.1	\$1,403.3		
\$150.0	\$57.2	\$145.0	\$57.2	\$145.0	\$57.2		
\$1,054.0	\$1,388.5	\$1,076.2	\$1,430.2	\$1,077.1	\$1,460.5		



¹Includes Pre-Funded 13th Check for FY18 & FY19.

²Other includes member contributions, employer contributions, lottery proceeds, docket & court fees, cigarette & alcohol taxes.

³Based on the 6/30/16 Actuarial Valuation. The Other forecast for FY2018, FY2019 and FY2020 could change.

Where does the money come from?

Indiana Pension Receipts 1993 - 2012

Employers: 48%

Investment Earnings: 35%

Employees: 17%





Source: National Institute On Retirement Security - Pensionomics 2014



INPRS' Contribution Sources – FY 2017

109.5% of Actuarial Determined Contributions (ADC) Paid in FY17*



*Estimate pending final actuarial analysis



INPRS' Contribution Sources – FY 2017



Estimate pending final actuarial analysis



INPRS' Asset Allocation Process

"The board shall invest its assets with the care, skill, prudence, and diligence that a prudent person acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of a like character with like aims. The board also shall diversify investments in accordance with prudent investment standards"

- 1) Understand liabilities, cash flows & profile of employers
- 2) Understand stakeholders' risk tolerance
- 3) Analyze various asset allocations vs. INPRS' objectives
 - Mean Variance Optimization based on established principles of Modern Portfolio Theory
 - Run as many historical scenarios & stress tests as possible
 - Seek input from the best asset allocators across the globe
- 4) Select target asset allocation & ranges for asset classes
- 5) Avoid "knee-jerk" portfolio changes (volatility & scary headlines are normal)

Diversification means you're always saying "sorry" for something.

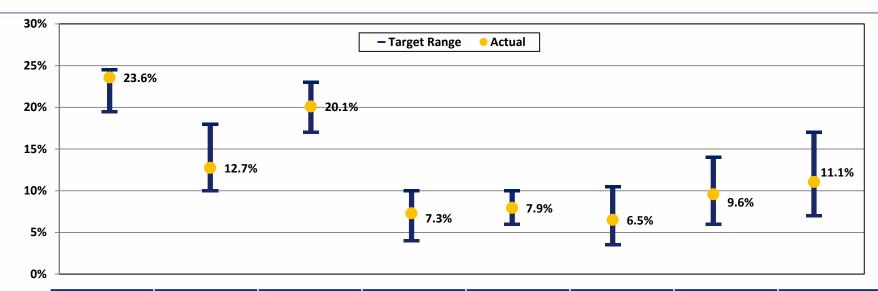


Purposes of the Asset Classes Outside of Stocks & Bonds

Private Equity	To provide risk-adjusted returns in excess of public equity markets through various strategies (e.g. operational improvements to the invested companies).
Real Estate	To provide attractive risk-adjusted returns by producing stable income and preserving capital. It also serves as a diversifier and protection against inflation in certain environments.
Absolute Return	To provide unique, diversifying return streams and reduce volatility by utilizing strategies that are less constrained.
Commodities	To provide protection when inflation is higher than expected and linked to goods / inputs.



Asset Allocation & Performance As of 6/30/17

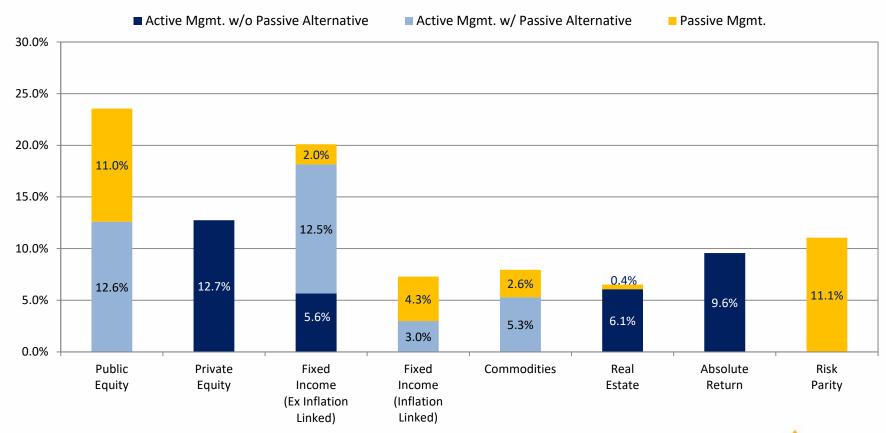


	Public Equity	Private Equity	Fixed Income (Ex Inflation- Linked)	Fixed Income (Inflation- Linked)	Commodities	Real Estate	Absolute Return	Risk Parity
1 Year Return	21.02%	12.71%	1.89%	-0.23%	-6.67%	10.35%	7.80%	4.61%
3 Year Return	5.84%	10.12%	4.07%	1.65%	-19.44%	9.67%	2.81%	1.00%
5 Year Return	11.41%	12.28%	3.93%	1.30%	-10.84%	10.60%	5.09%	3.67%
10 Year Return		8.76%	5.28%	4.84%		5.22%	3.07%	



INPRS' Split Between Active & Passive Portfolios

INPRS conducted a review of active/passive exposures during FY17



Actual asset allocation as of June 30, 2017. Cash excluded from the analysis.



INPRS' Return Projections

	INPRS' Target Weight ¹	Projected 10-yr Returns ² (June 30, 2017)
U.S. Inflation		2.1%
U.S. Large Cap Stock	10.3%	4.7%
U.S. Small Cap Stock	0.9%	4.8%
Int'l Developed Mkt Stock	8.4%	9.7%
Emerging Mkt Stock	2.4%	8.6%
Private Equity	10.0%	7.8%
Private Credit	4.0%	6.5%
Fixed Income	20.0%	4.4%
Inflation-Linked Bonds (TIPS)	7.0%	2.7%
Commodities	8.0%	4.3%
Real Estate	7.0%	5.8%
Hedge Funds	10.0%	6.0%
Risk Parity	12.0%	7.2%
10-yr Projected Return		6.40%
30-yr Projected Return		6.57 – 6.87%

¹Approved at the June 2015 INPRS Board meeting.

²Source: Verus. Annualized, geometric returns. Due to the historically low interest rates and slow growth across the globe, expectations remain low.



FY17 Defined Benefit Investment Management & Performance Fees¹

0.69% of INPRS' Total DB Market Value²

\$10.5M Passive Fees

- + \$45.6M Active Mgmt. + Performance Fees in Public Asset Classes³
- + \$123.0M Alternative Asset Class Mgmt. + Performance Fees⁴
- = \$179.0M Total INPRS Investment Mgmt. + Performance Fees

CEM Benchmarking, an industry-leader in evaluating the efficiency of public pensions, analyzed INPRS' CY14 investment management fees.

- ✓ INPRS' fees were slightly lower than peers after adjusting for asset allocation differences between plans
- ✓ INPRS outperformed its benchmark more than peers (net of all fees)



¹ Unaudited estimates.

² Based on average market values of the individual portfolios throughout the year.

³ Includes performance fees for Public Equity and Fixed Income asset classes.

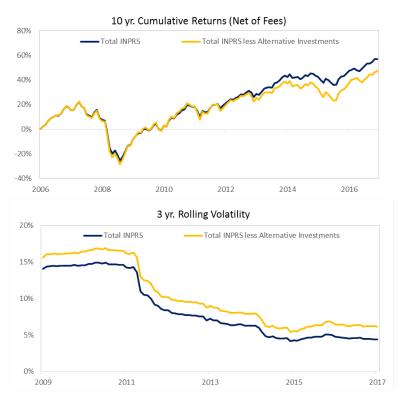
⁴ Includes performance fees for Absolute Return asset class.

Alternative Investments

Although more expensive than merely investing in public markets, alternative investments¹ have had two positive results:

INPRS' total returns have been higher than they would have been without alternative investments²...

...and INPRS' total volatility has been lower because of them.



² Assumed that any allocation to alternative investments would have been allocated pro-rata to the remaining asset classes based on INPRS' asset allocation.



¹ Alternative investments includes Private Equity, Real Estate, and Absolute Return.

DC Performance (Net of Fees) As of June 30, 2017

	Market Value (\$MM)	% of ASA	1 Year	3 Year	5 Year ¹
Large Cap Equity Index Fund S&P 500 Index	939	17.9	17.87 <i>17.90</i>	9.59 <i>9.61</i>	14.61 <i>14.63</i>
Small/Mid Cap Equity Fund Russell Small Cap Completeness Index	676	12.9	21.55 <i>21.84</i>	6.64 7.00	13.85 <i>14.36</i>
International Equity Fund MSCI ACWI ex US	219	4.1	22.05 <i>20.45</i>	2.45 <i>0.80</i>	8.49 <i>7.22</i>
Fixed Income Fund Barclays Aggregate	172	3.3	0.73 -0.31	2.45 <i>2.48</i>	2.59 <i>2.21</i>
Inflation Linked Fixed Income Fund Barclays US TIPS Index	33	0.6	-0.49 -0.63	0.40 <i>0.63</i>	0.28 <i>0.27</i>
Stable Value Fund Citi 3 Month T-Bill Index	2,605	49.6	1.64 0.46	1.45 <i>0.21</i>	2.20 <i>0.15</i>
Money Market Fund Citi 3 Month T-Bill Index	28	0.5	0.80 <i>0.46</i>	0.40 <i>0.21</i>	0.28 <i>0.15</i>
Consolidated DB Assets ² Combined PERF TRF BM	9	0.2	8.43 <i>6.91</i>	3.04 <i>2.72</i>	5.62 5.41
Target Date Funds ³	570	10.9			
TOTAL ASA ASSETS ⁴	5,251	100.0			

¹All returns are hypothetical composite returns, with the exception of the Stable Value Fund and Consolidated DB Assets, which are actual. ²Only available in the LEDC plan. ³Returns and indices are on the Target Date Funds Performance slide. ⁴Total assets in the PERF, TRF and LEDC plans.



Target Date Funds Performance (Net of Fees) As of June 30, 2017¹

	Market Value (\$MM)	% of Target Date Funds	1 Year	3 Year	5 Year
2060 Fund 2060 Fund Index	7	1.2	14.26 <i>13.36</i>	4.55 <i>3.99</i>	8.64 <i>8.03</i>
2055 Fund 2055 Fund Index	77	13.5	14.27 <i>13.36</i>	4.57 3.99	8.56 8.01
2050 Fund 2050 Fund Index	79	13.8	14.27 <i>13.36</i>	4.57 3.99	8.56 8.01
2045 Fund 2045 Fund Index	57	10.1	14.27 <i>13.36</i>	4.57 3.99	8.56 8.01
2040 Fund 2040 Fund Index	58	10.1	14.08 <i>13.17</i>	4.51 <i>3.93</i>	8.52 <i>7.97</i>
2035 Fund 2035 Fund Index	66	11.6	12.42 <i>11.52</i>	4.18 <i>3.66</i>	8.19 <i>7.69</i>
2030 Fund 2030 Fund Index	65	11.4	8.58 <i>7.68</i>	3.52 <i>3.15</i>	7.04 <i>6.59</i>
2025 Fund 2025 Fund Index	72	12.6	5.88 5.01	3.00 <i>2.70</i>	5.45 <i>4.97</i>
2020 Fund 2020 Fund Index	64	11.2	4.00 3.15	2.45 <i>2.14</i>	4.18 3.62
Retirement Fund Retirement Fund Index	25	4.5	2.48 <i>1.63</i>	2.01 <i>1.66</i>	2.73 <i>2.00</i>
TOTAL TARGET DATE FUNDS	570	100			

¹The assets in the PERF, TRF and LE plans were merged on 4/1/2013. Prior to 4/1/2013, all data presented is calculated from manager composite performance.



Sudan, Terror States and Anti-Israel BDS Divestment

HEA 1067

(Sudan Divestment)

If a company continues to have scrutinized active business operations 90 days after the Fund first sends written notice to the company, the Fund shall sell, redeem, divest, or withdraw all publicly traded securities of the company that are held by the Fund, as follows:

- At least 50% in 9 months
- 100% in 15 months.

HEA 1547

(Terror States Divestment)

If a company continues to have scrutinized active business operations 180 days after the Fund first sends written notice to the company, the Fund shall sell, redeem, divest, or withdraw all publicly traded securities of the company that are held by the Fund, as follows:

- At least 50% in 3 years
- At least 75% in 4 years
- 100% in 5 years

HEA 1378

(Anti-Israel BDS Divestment)

If a company continues to engage in boycott, divest from, or sanction Israel activity 90 days after the Fund first sends written notice to the company, the Fund shall sell, redeem, divest, or withdraw all publicly traded securities of the company that are held by the Fund, as follows:

- At least 50% in 9 months
- 100% in 15 months.



Sudan and Terror States Divestment Update 2017

HEA 1067 (Sudan Divestment)

INPRS holds no securities on the Sudan Restricted List.

HEA 1547 (Terror States Divestment)

Security Description	Market Value as of 6/30/2017
Telefonica Brasil S.A.	\$1,683,889.25
Telefonica S.A.	\$7,043,303.75
Telefonica Emisiones, S.A.U.	\$2,171,075.77
Sinopec Group Overseas Development (2016) Limited	\$735,537.79
Gaz Capital S.A.	\$1,151,247.60
MTN (Mauritius) Investments Limited	\$209,690.00
Telefonica Europe B.V.	\$365,223.50
Grand Total	\$13,359,967.66

HEA 1378 (Anti-Israel BDS Divestment)

There are currently no restricted businesses on the Anti-Israel BDS Restricted List

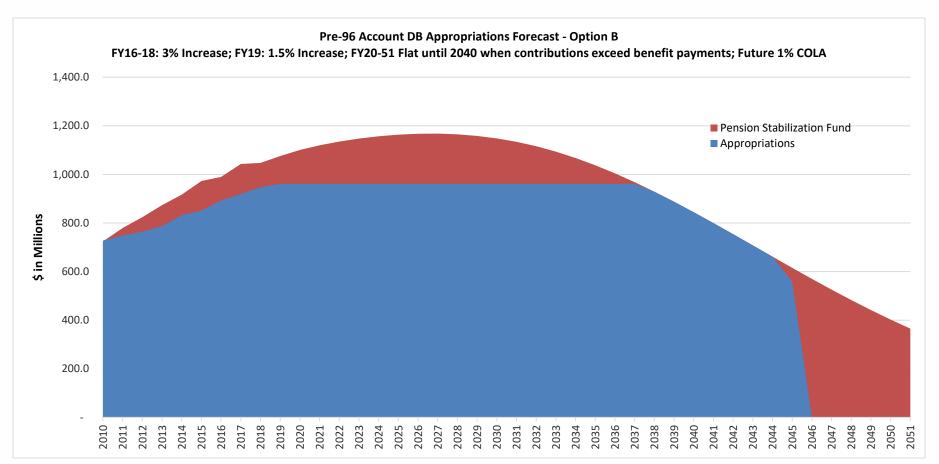


Long Term TRF Pre-96 Funding Options

- While near term GF appropriations should maintain 3% growth, the legislature will have options in the future
 - ➤ Option A Maintain 3% appropriations growth until contributions equal benefits and become 100% funded
 - ➤ Option B Manage appropriations to maintain positive PSF balance



Teachers' Retirement Fund (TRF) Pre-1996 Account Forecast – Option B – PSF only*



^{*} Based on the 6/30/2016 Valuation; Only includes Pension Benefit Payout and PSF Assets, excludes ASA Annuities



COLAs

PERF TRF '77 Police & Fire **Judges Excise, Gaming & Conservation Officers Prosecuting Attorneys Legislators DB Legislators DC**





PERF / TRF COLAs & Thirteenth Checks

- COLAs are not free! (a one-time 1% PERF & TRF COLA = \$195M)
- "Thirteenth Checks" aren't free either, but are cheaper than COLAs (\$55M)
- Actuaries factor in ad-hoc COLAs based upon historical experience. The actuaries currently assume a 1% annual COLA. Each 1% of COLA equals
 - Approximately \$2.8B of PERF/TRF liabilities
 - 4.1 percentage point change in funding ratio
 - 2.39 and 1.83 percentage points of the PERF and TRF contribution rates respectively
- When the General Assembly grants a COLA / 13th Check, there is a cost to both state and local units of government including schools
 - For all but the TRF Pre-96 account, COLAs are funded by the employer as part of their contribution rate (1% COLA = \$86.6M, 13th Check = \$33.0M)
 - For the TRF Pre-96 account, COLAs and thirteenth checks are funded directly from the state general fund (1% COLA = \$108.4M, 13th Check = \$21.7M)

Auto COLA History

1977 Police and Fire (CPI, Max. 3%)

<u>7/1/2007</u>	7/1/2008	7/1/2009	<u>7/1/2010</u>	<u>7/1/2011</u>	7/1/2012	<u>7/1/2013</u>	<u>7/1/2014</u>	<u>7/1/2015</u>	<u>7/1/2016</u>	<u>7/1/2017</u>
2.4%	3.0%	0.0%	2.4%	2.1%	2.8%	1.7%	1.4%	0.0%	1.1%	2.5%

Judges '77 System (Whenever salary of the position changes)

7/1/2007	7/1/2008	7/1/2009	<u>7/1/2010</u>	<u>7/1/2011</u>	<u>7/1/2012</u>	<u>7/1/2013</u>	<u>7/1/2014</u>	<u>7/1/2015</u>	<u>7/1/2016</u>	<u>7/1/2017</u>
7/1-4.0%	3.25%	0.0%	0.0%	1.3%	2.2%	3.1%	0.0%	2.2%	3.1%	2.0%
12/2-1.5%										

Judges '85 System (Ad-Hoc before 2011, same as '77 system after 2010*)

<u>7/1/2007</u>	7/1/2008	7/1/2009	<u>7/1/2010</u>	<u>7/1/2011</u>	7/1/2012	<u>7/1/2013</u>	<u>7/1/2014</u>	<u>7/1/2015</u>	<u>7/1/2016</u>	7/1/2017
0.0%	2.0%	2.0%	0.0%	1.3%	2.2%	3.1%	0.0%	2.2%	3.1%	2.0%

*Only for members who retired after 12/31/09



Public Employees' Retirement Fund (PERF) Fund Overview

As of June 30, 2017 (Estimate)

MEMBERSHIP: Full-time employees of the state and political subdivisions that elect to participate

TYPE: Defined Benefit - Hybrid (Defined Benefit + Annuity Savings Account)

FUNDED RATIO: 79.0% UNFUNDED LIABILITY: \$4,007.3 M

BENEFITS1

Benefit Formula: 1.1% x Avg. High 5 Yr. Salary x Yrs. Service (plus ASA)

Vesting: DB - 10 years, ASA - Immediate

Full Retirement Age: 65 w/ 10 years service, 60 w/ 15 years service, or 55 with a Rule of 85

Avg. Overall Annual Retiree Benefit (2016): \$9,996 (ASA Annuitized)

Actual	Projected Benefit Payments (in millions) ²		
<u>FY17</u>	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>
\$821	\$887	\$933	\$980

FUNDING SOURCES

Member Contribution: 3% salary to member ASA General Fund Appropriation: Pre-Funded 13th Check

Employer Contribution (State): Board Approved Rate (FY17 = 11.2%; FY18 = 11.2%) Employer Contribution (Subdivisions): Board Approved Rate (FY17 = 11.2%; FY18 = 11.2%)

Actual	Projected Contributions (in millions) ³		
<u>FY17</u>	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>
\$165	\$152	\$154	\$156
-	\$5	\$5	-
\$186	\$190	\$192	\$195
<u>\$373</u>	<u>\$380</u>	<u>\$385</u>	\$390
\$724	\$727	\$736	\$741



¹ Actual and Projected Benefit Payments include ASA Annuity payments

² Based on the 6/30/2016 Actuarial Valuation. FY18, FY19 and FY20 projected benefit payments could change.

 $^{^3}$ Based on the $\,$ 6/30/2016 Actuarial Valuation. FY18, FY19 and FY20 projected contributions could change.

Teachers' Retirement Fund (TRF) – Pre 1996 Account Fund Overview

As of June 30, 2017 (Estimate)

MEMBERSHIP: Teachers of K12 public schools and certain state universities hired prior to July 1, 1995

TYPE: Defined Benefit - Hybrid (Defined Benefit + Annuity Savings Account)

FUNDED RATIO: 29.6% UNFUNDED LIABILITY: \$11,785.6 M

BENEFITS1

Benefit Formula: 1.1% x Avg. High 5 Yr. Salary x Yrs. Service (plus ASA)

Vesting: DB - 10 years, ASA - Immediate

Full Retirement Age: 65 w/ 10 years service, 60 w/ 15 years service, or 55 with the Rule of 85

Avg. Overall Annual Retiree Benefit (2016): \$23,640 (ASA Annuitized)

Actual	Projected Benefit Payments (in millions) ²		
<u>FY17</u>	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>
\$1,136	\$1,170	\$1,196	\$1,218

FUNDING SOURCES

Member Contribution: 3% salary to member ASA

General Fund Appropriation: Pre-96 Pay-as-you-go benefit obligation

General Fund Appropriation: Pre-Funded 13th Check (Includes FY18 and FY19)

Pension Stabilization Fund: Lottery (Pre-96)

Other: Pre-96 Employer Contribution (AOS, FSP, HEP)

Actual	Projected Contributions (in millions) ²		
<u>FY17</u>	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>
\$29	\$25	\$22	\$20
\$841	\$866	\$892	\$919
-	\$22	\$22	-
\$30	\$30	\$30	\$30
<u>\$4</u>	<u>\$5</u>	<u>\$5</u>	<u>\$5</u>
\$904	\$948	\$971	\$974

² Based on the 6/30/2016 Actuarial Valuation. FY18, FY19 and FY20 projected benefit payments as well as FY18, FY19and FY20 projected contributions could change.



¹ Actual and Projected Benefit Payments include ASA Annuity payments

Teachers' Retirement Fund (TRF) – 1996 Account Fund Overview

As of June 30, 2017 (Estimate)

MEMBERSHIP: Teachers of K12 public schools and certain state universities hired after June 30, 1995

TYPE: Defined Benefit - Hybrid (Defined Benefit + Annuity Savings Account)

FUNDED RATIO: \$2.8% UNFUNDED LIABILITY: \$500.1 M

BENEFITS1

Benefit Formula: 1.1% x Avg. High 5 Yr. Salary x Yrs. Service (plus ASA)

Vesting: DB - 10 years, ASA - Immediate

Full Retirement Age: 65 w/ 10 years service, 60 w/ 15 years service, or 55 with the Rule of 85

Avg. Overall Annual Retiree Benefit (2016): \$21,264 (ASA Annuitized)

Actual	Projected Benefit Payments (in millions) ²		
FY17	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>
\$109	\$141	\$154	\$168

FUNDING SOURCES

Member Contribution: 3% salary to member ASA

Employer Contribution: 1996 Account Board Approved Rate (FY18 & FY19 = 7.5%)

Actual	Projected Contributions (in millions) ²		
<u>FY17</u>	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>
\$93	\$97	\$106	\$111
<u>\$227</u>	<u>\$244</u>	<u>\$265</u>	<u>\$278</u>
\$320	\$341	\$371	\$389

² Based on the 6/30/2016 Actuarial Valuation. FY18, FY19 and FY20 projected benefit payments as well as FY18, FY19 and FY20 projected contributions could change.



¹ Actual and Projected Benefit Payments include ASA Annuity payments

1977 Police Officers' and Firefighters' Pension and Disability Fund (1977 Fund) Fund Overview

As of June 30, 2017 (Estimate)

MEMBERSHIP: Local full-time police and firefighters hired after April 30,1977

TYPE: Defined Benefit

FUNDED RATIO: 103.7% UNFUNDED LIABILITY: \$0M, overfunded by \$201.8M

BENEFITS

Benefit Formula: 50% of first class officer salary plus 1% for each 6 months after 20 years, capped at 12%.

Vesting: 20 years

Full Retirement Age: 52 with at least 20 years service

Avg. Overall Annual Retiree Benefit (2016): \$26,280

Actual	Projected Benefit Payments (in millions) ¹		
FY17	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>
\$145	\$189	\$202	\$208

FUNDING SOURCES

Member Contribution: 6% of first class officer salary (max. 32 years)

Employer Contribution: Board Approved Rate (FY18= 17.50%; FY19 = 17.50%)

Actual	Projected Contributions (in millions) ¹		
<u>FY17</u>	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>
\$47	\$47	\$48	\$49
<u>\$151</u>	<u>\$142</u>	<u>\$145</u>	<u>\$148</u>
\$198	\$189	\$193	\$197

¹ Based on the 6/30/2016 Actuarial Valuation. FY18, FY19 and FY20 projected benefit payments as well as FY18, FY19 and FY20 projected contributions could change.



Judges' Retirement System Fund Overview

As of June 30, 2017 (Estimate)

MEMBERSHIP: Judges and Magistrates of the Supreme Court of the State of Indiana, Court of Appeals,

Indiana Tax Court, Circuit Court or County Courts.

TYPE: Defined Benefit - Consists of two plans: 1977 System and the 1985 System

FUNDED RATIO: 93.9% UNFUNDED LIABILITY: \$31.7M

BENEFITS

Benefit Formula: Final Salary x percent factor established in IAC (24% - 60%) based on years of service

Vesting: 8 years

Full Retirement Age: 65 with at least 8 years service, or age 55 under the Rule of 85

Avg. Overall Annual Retiree Benefit (2016) \$59,868

Actual	Projected Benefit Payments (in millions) ¹		
<u>FY17</u>	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>
\$22.1	\$29.6	\$31.6	\$33.5

FUNDING SOURCES

Member Contribution: 6% salary (max. 22 years)
General Fund Appropriation: Actuarially Calculated

Other: Certain docket and court fees

Actual	Projected Contributions (in millions) ¹		
<u>FY17</u>	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>
\$3.3	\$3.2	\$3.2	\$3.4
\$9.7	\$8.0	\$8.9	\$9.8
<u>\$7.1</u>	<u>\$7.1</u>	<u>\$7.1</u>	<u>\$7.1</u>
\$20.1	\$18.3	\$19.2	\$20.3



¹Based on the 6/30/2016 Actuarial Valuation. FY17, FY18 and FY19 projected benefit payments could change.

State Excise Police, Gaming Agent, Gaming Control Officer, and Conservation Enforcement Officers' Retirement Plan Fund Overview

As of June 30, 2017 (Estimate)

MEMBERSHIP: State Excise Police, Gaming Agents, Gaming Control Officers, and Conservation Enforcement Officers

TYPE: Defined Benefit

FUNDED RATIO: 87.3% UNFUNDED LIABILITY: \$18.1 M

BENEFITS

Benefit Formula: [(Average high five salary x 25%) + (1.67% x yrs service beyond 10 years)]; capped at 75%

Vesting: 15 years

Full Retirement Age: Mandatory @ age 65, at age 55 the Rule of 85 applies, & age 50 with 25 years of service

Avg. Overall Annual Retiree Benefit (2016): \$25,728

Actual	Projected Benefit Payments (in millions) ¹		
FY17	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>
\$6.7	\$7.1	\$7.4	\$7.6

FUNDING SOURCES

Member Contribution: 4% of total salary

General Fund Appropriation: Pre-Funded 13th Check

Employer Contribution: Board Approved Rate (FY18 & FY19 = 20.75%)

Actual	Projected Contributions (in millions) ²		
<u>FY17</u>	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>
\$1.1	\$1.1	\$1.1	\$1.1
\$0.0	\$0.1	\$0.1	\$0.0
<u>\$5.7</u>	<u>\$5.5</u>	<u>\$5.6</u>	<u>\$5.6</u>
\$6.8	\$6.7	\$6.8	\$6.7



 $^{^{1}}$ Based on the 6/30/2016 Actuarial Valuation. FY18, FY19 and FY20 projected benefit payments could change.

² Based on the 6/30/2016 Actuarial Valuation. FY18, FY19 and FY20 projected contributions could change.

Prosecuting Attorneys' Retirement Fund (PARF) Fund Overview

As of June 30, 2017 (Estimate)

MEMBERSHIP: Prosecutors or chief deputy prosecutors serving after December 31, 1989, Executive Director or Assistant

Executive Director of the Prosecutors Council, or state paid deputy prosecuting attorney hired after June 30, 1995.

TYPE: Defined Benefit

FUNDED RATIO: 60.0% UNFUNDED LIABILITY: \$38.7 M

BENEFITS

Benefit Formula: High Salary x percent factor established in IAC (24% - 60%) based on years of service

Vesting: 8 years

Full Retirement Age: 62 with at least 8 years service, or 55 with the Rule of 85

Avg. Overall Annual Retiree Benefit (2016): \$25,056

Actual	Projected Benefit Payments (in millions) ¹		
<u>FY17</u>	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>
\$3.6	\$4.7	\$4.9	\$5.1

FUNDING SOURCES

Member Contribution: 6% of Salary

General Fund Appropriation: Actuarially Calculated for the DB plan

Actual	Projected Contributions (in millions) ²			
FY17	<u>FY18</u>	FY19	<u>FY20</u>	
\$1.4	\$1.3	\$1.4	\$1.4	
\$1.5	\$3.0	\$3.2	\$3.0	
\$2.9	\$4.3	\$4.6	\$4.4	



¹ Based on the 6/30/2016 Actuarial Valuation. FY18, FY19 and FY20 projected benefit payments could change.

² Based on the 6/30/2016 Actuarial Valuation. FY18, FY19 and FY20 projected Member Contributions could change.

Legislators' Retirement System Fund Overview

As of June 30, 2017 (Estimate)

MEMBERSHIP: Members of the Indiana General Assembly

TYPE: Defined Benefit - Members serving on April 30, 1989 who elected to participate

Defined Contribution - Members serving on or after April 30, 1989 who elect to participate

FUNDING RATIO: 81.9% UNFUNDED LIABILITY: \$ 0.7 M

BENEFITS

Benefit Formula: Lesser of \$480 x yrs service before '89 or high consecutive three year salary

Vesting: 10 years

Full Retirement Age: 65 with at least 10 years service, 55 with the Rule of 85, or 60 w/ 15 yrs service

Avg. Overall Annual Retiree Benefit (2016): \$5,376 (DB Plan Only)

Actual	Projected Benefit Payments (in millions) ¹		
<u>FY17</u>	<u>FY18</u>	<u>FY19</u>	FY20
\$0.4	\$0.4	\$0.4	\$0.4

FUNDING SOURCES

Employer Contribution: State rate for PERF plus 3% of salary for the <u>DC plan</u> General Fund Appropriation: Actuarially Calculated Contribution for the DB plan

Actual	Projected Contributions (in millions) ²		
FY17	<u>FY18</u>	<u>FY19</u>	FY20
\$1.8	\$1.8	\$1.8	\$1.8
<u>\$0.1</u>	\$0.2	\$0.3	\$0.3
\$1.9	\$2.0	\$2.1	\$2.1



¹ Based on the 6/30/2016 Actuarial Valuation. FY18, FY19 and FY20 projected benefit payments could change.